Northwest Indian Fisheries Commission

NEWS

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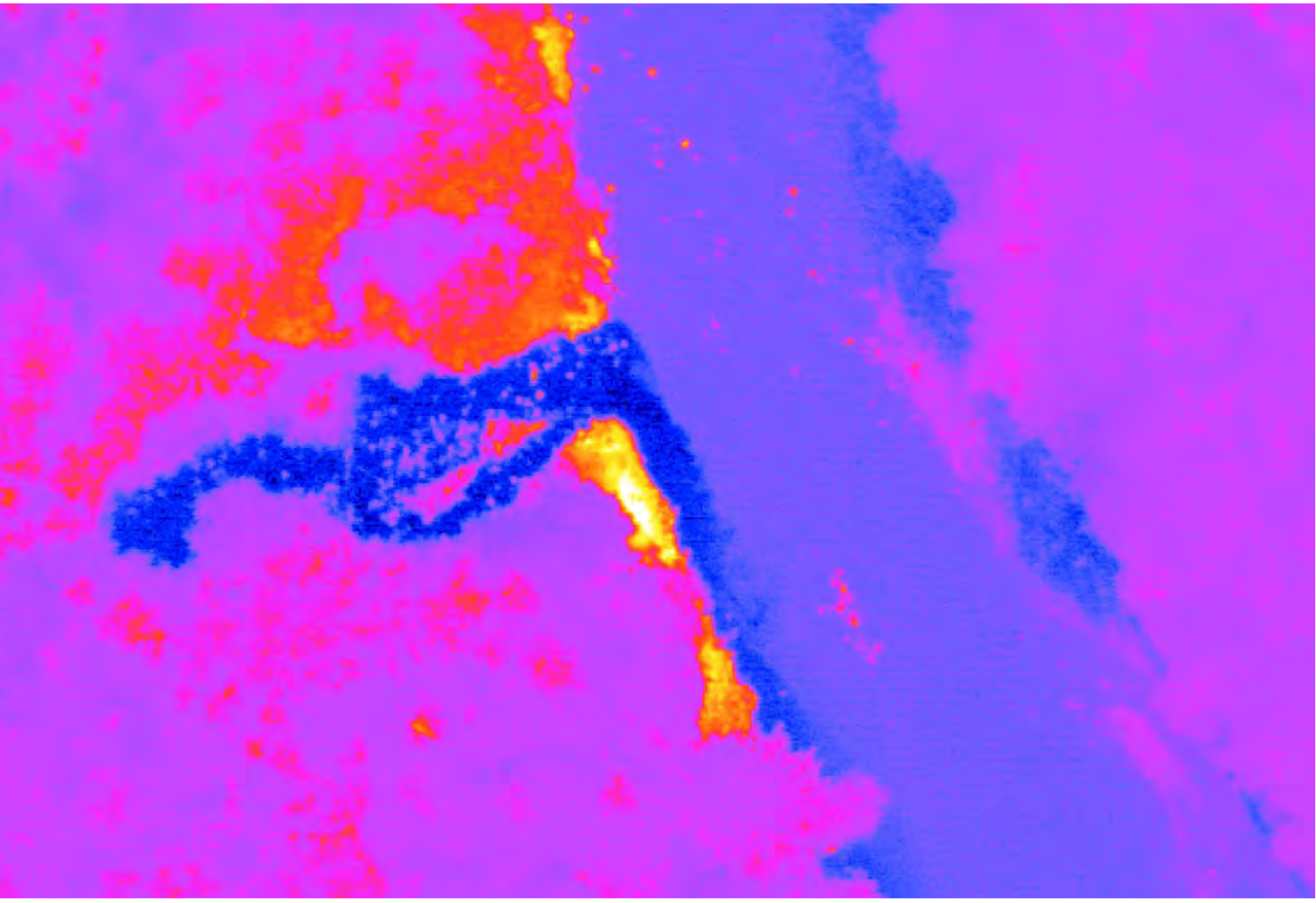
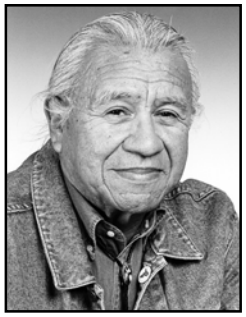


Inside:

Being Frank

Wild Stocks Still Focus Of ESA

By Billy Frank Jr.
NWIFC Chairman



The solution sounds simple: Just lump healthy hatchery salmon stocks together with weak wild salmon populations, count them all up, and all of the problems associated with wild salmon recovery disappear. There's no need to replace or repair lost and degraded spawning and rearing habitat - the main cause for the decline of wild salmon populations - all you have to do is crank out more hatchery fish. After all, they're the same, aren't they?

That's how some folks would like to interpret a federal court judge's ruling on a suit over Oregon coastal coho listed as "threatened" under the Endangered Species Act.

The ESA protects us as much as it does the salmon. That's why we created it in 1973. We knew that the wild creatures inhabiting this country needed the same things we do: good habitat in which to live.

Judge Michael Hogan ruled in September that the National Marine Fisheries Service (NMFS) erred when it listed Oregon coastal coho for protection under the ESA by distinguishing wild fish from hatchery fish.

Yes, hatchery-produced Oregon coastal coho share the same genes with their wild cousins. After all, it was their eggs and sperm that were used to produce the hatchery fish to begin with. But that's where the similarities end. Comparing most hatchery salmon stocks to their wild cousins is like comparing feed-lot cattle to the buffalo that once roamed the Great Plains.

Yet that mentality is exactly what was behind the suit that resulted in Hogan's ruling. It is the same kind of thinking that dammed our rivers without regard for fish passage, led to the diversion of river water for every conceivable use except the needs of salmon, and leveled our forests.

Millions of years of evolution have made the wild salmon uniquely suited for survival in the rivers of the Pacific Northwest. Salmon, as a species, are inherently productive. Given some basic needs – clean cold water, good spawning and rearing habitat and access to and from the sea – they will develop robust populations.

Wild salmon are simply in the way of those who sued NMFS over its handling of Oregon coastal coho. If they can eliminate the wild salmon, they can eliminate the accountability that wild salmon demand through the ESA. That way, they don't have to worry about things like healthy watersheds, which we need just as much as the salmon.

While NMFS made a procedural error in applying the

Continued On Next Page

On The Cover: This aerial infrared image of the South Fork of the Nooksack River shows the hot spots and cool zones that salmon face. Areas of higher temperatures are indicated by brighter colors. The Nooksack Tribe is using these images to plan salmon protection and habitat preservation efforts. See story on Page 2. *Photo: Nooksack Tribe*

Northwest Indian Fisheries Commission News

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Nooksacks Study Rising River Temperatures

Dwindling river flows and rising water temperatures are problems for salmon. The extent of those problems – and what can be done about them – are the subjects of an innovative project by the Nooksack Tribe.

Using helicopter surveys of the river equipped with cutting-edge Forward Looking Infrared Radar (FLIR) technology – a special type of camera which reveals the heat signature of an area – the Nooksack Natural Resources Department is tracking regional temperature conditions with a view to improving salmon habitat.

"Salmon need cool water to live and spawn in," said Bob Kelly, director of Nooksack Natural Resources. "By studying areas where temperatures are rising, we can help solve one of the most immediate and pressing problems to endangered fish."

The Nooksack Tribe obtained Bureau of Indian Affairs funding to finance the $30,000 project, contracting with a group of scientists affiliated with Oregon State University.

Temperature increases have been recorded in the Nooksack River's South Fork for the past several years. In 1996 and 1998, the river was listed as an "impaired water body," highlighting the tribe's concerns.

A main objective for the Nooksack Tribe is determining how the rising temperatures will affect salmon spawning, especially dwindling chinook populations.

The tribe has been tracking the temperature issues since 1996, monitoring the river with ground-based thermographs. In-stream flow measurements, also being used by the tribe, are helping determine what link exists between river water levels and temperature. FLIR technology has come into wider use over the last three years, though, and the flights help provide the tribe with a more robust picture of what is happening in the watershed.

"The distribution of temperatures in a watershed can only be ascertained from the air," said Kelly. "Through our other temperature monitoring programs, we can keep track of specific areas, but an aerial view is the best way to look at trends throughout the Nooksack basin."

Tribal staff hope that the FLIR images will help identify "thermal refugia" – cooler spots in otherwise harshly high-temperature environments. These are quality, cooler spots are often used by salmon for holding habitat.

"Different areas provide different levels of stress to fish," said Kelly. "We're trying to protect the high-quality refuge areas, which allow salmon quality places to rest and to spawn."

Data collected through the study will be analyzed to help the tribe target restoration activities to improve and enhance thermal refugia areas; to address specific areas for riparian restoration, land-use management, or hydrological management; and to provide a clearer long-term view of the Nooksack Basin's habitat needs.

"For thousands of years, the Nooksack Tribe has existed in harmony with the resources of this area," said Kelly. "We've been able to do this by taking a long-term, big-picture outlook toward resource management. This project is the latest in a long series of efforts to understand the needs of our watershed, and to address those needs effectively and sustainably." – *J. Shaw*

Nooksack fisheries technician Lorne Roberts uses a current measurement device to track the force of water flow in the Nooksack River. *Photo: J. Shaw*

Frank

Continued From Page 1

ESA to Oregon coastal coho, the agency was fully carrying out the spirit of the law to provide protection for recovery of self-sustaining populations in their natural habitat.

NMFS has decided not to appeal Judge Hogan's ruling, and is planning to take a number of steps to improve consistency in future ESA listing decisions.

Regardless, it is important to remember that wild stocks are the focus of the ESA. Equating wild fish with hatchery fish only removes incentives for habitat protection and restoration, as well as the many other efforts under way to recover wild salmon.

Wild salmon can speak. We gave them a voice when we created the ESA. We must listen and act wisely on their behalf – as well as our own.

Tribes Share Bountiful Salmon Harvest

Excellent ocean conditions and other factors led to exceptionally large returns of salmon to most areas in western Washington this year. The huge runs were a bright spot in the overall trend for wild salmon stocks, which continues downward because of ongoing loss and degradation of spawning and rearing habitat.

As is their tradition, the treaty Indian tribes shared their bounty with others.

Over the course of the month of November, the Upper Skagit Tribe distributed over 12,000 pounds of salmon to community food distribution organizations.

"This is great," said Nancy Williams of the Anacortes Salvation Army, one of the local relief organizations benefiting from the tribal harvest. "Salmon would not be accessible to many of the families we serve otherwise. This provides nutritious food for people who otherwise would not have access to it."

Historically, food banks have a difficult time supplying sufficient quantities of high-protein food for communities. "Tribal people have known for centuries that salmon is a critical part of a healthy diet," said Scott Schuyler, tribal natural resources director. "We're happy to be able to share that with others."

Over on Hood Canal, the Skokomish Tribe donated much of its coho and chum harvest this year to local food banks, spreading the wealth of this year's huge Hood Canal salmon runs. Many local social service agencies and food banks, including the Refugee and Immigrant Center, are benefiting from the surplus salmon.

By the time the tribe's chum fishery ended in mid November, they had contributed almost 20,000 pounds of salmon, said Dave Herrera, Skokomish fisheries manager.

"This has really been a big boost for us," said Rik Godderz, executive director of the Refugee Center in Olympia. "We think it is a great thing that the first Americans are helping the most recent Americans get their feet on the ground."

"Because of the low price of salmon this year, we've had a lot of fish available," said Herrera. "Our tribal fishermen are really happy they can fill a very big community need like this."

Other organizations receiving salmon this year included the South Thurston County Food Bank and Grays Harbor Food Bank, among others.

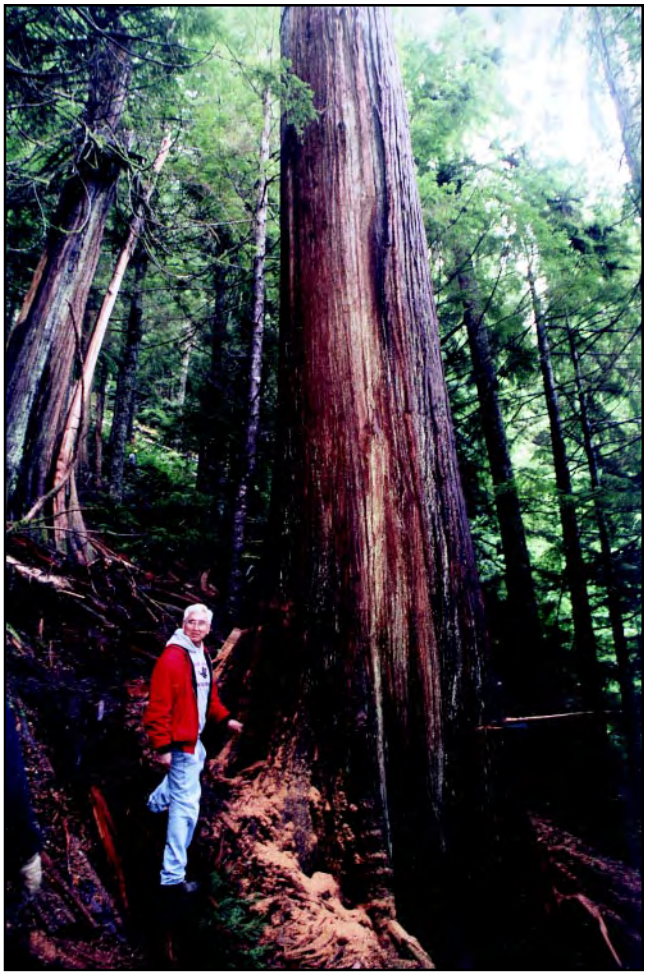
– J. Shaw & E. O'Connell

Nancy Wells of the Anacortes Salvation Army and Dave Tillman of the Upper Skagit Tribe load coho salmon for transport to local food banks. *Photo: J. Shaw*

Habitat Help

Members of the Nisqually Tribe's Salmon Restoration Team, Pierce County Stream Team and South Puget Sound Salmon Enhancement Group plant native vegetation as part of a habitat restoration project along the Nisqually River. Through a grant from the State Salmon Recovery Board, an existing drainage area was transformed into a rearing pond for juvenile salmon and a concrete fishway was installed to connect the pond to the river. *Photo: T. Meyer*

Giant Cedar Tree Will Become Canoe



Dennis "Sully" Sullivan, Lower Elwha Klallam tribal chairman, walks by a large western red cedar the tribe recently obtained from Olympic National Forest to carve for a tribal canoe. *Photo: D. Preston*

Without a ceremonial cedar canoe, Lower Elwha Klallam tribal chairman Dennis "Sully" Sullivan says there is a hole in the tribe's cultural program. What may fill that void – and then some – is a massive 165-foot tall, 10-foot wide western red cedar the tribe recently received from the U.S. Forest Service (USFS). "Canoes have always had central place in our lives, in a lot of ways they define who we are," said Sullivan. "Being able to harvest this cedar has fulfilled a long term goal of this community."

Two years ago, the tribe's 10-year-old ceremonial canoe – which had been paddled to important cultural celebrations and potlatches in Seattle, Bella Bella, B.C., and A-KA-Lat in LaPush – cracked and split during a training run and spilled its occupants, including Russ Hepfer, tribal vice-chairman, and his wife, into the frigid Strait of Juan de Fuca. A passing crabber rescued the paddlers, but the canoe wasn't so lucky. It now sits in pieces behind the tribe's community center. "As canoe people, it was like losing a member of the family," Hepfer said. "It was a big blow. That canoe was instrumental in helping revitalize cultural programs and ceremonies related to fishing here."

Before the tribe claimed the mighty tree, located by tribal member Jim Bolstrom on remote USFS land about 25 miles west of Port Angeles, it got the go-ahead from the U.S. Fish and Wildlife Service. The agency looked into concerns the tree was located in threatened marbled murrelet habitat. With the go-ahead, the tree was blessed in a ceremony, then cut down and transported to the tribe's reservation at the mouth of the Elwha River. There, master carvers and community members alike will participate in the carving of one or, with enough high quality wood, up to two canoes in the range of 37 feet long.

It may take a year or more to carve the first canoe, but that's OK with Hepfer. "The finding of the tree, the blessing, the carving, its first time in the water – the entire process is an ongoing celebration for our tribe," he said.

In addition to the vessel's central role in the tribe's canoe society and in various canoe journeys, the canoe is a key part of the tribe's First Salmon Ceremony. The ceremony honors the first salmon harvest of the year, and a major part involves bringing the fish ashore in a traditional canoe made of cedar.

The Sooke Tribe on Vancouver Island helped out in a pinch over the summer of 2000. "They had an extra canoe and it enabled us to participate in the last canoe journey," said Sullivan. "We were very grateful. But it's not the same as having your own canoe."

Enter the U.S. Forest Service, to which the tribe came with a request a couple years ago for a large cedar tree for traditional tribal uses, including carving a canoe. Material from the tree would also be used to make paddles, masks, hats, clothing, baskets, and for other traditional needs. Agreeing that the request was consistent with tribal treaty rights, District Ranger Ben Kizer approved a permit for the tribe to harvest the tree. "The Forest Service has been working with us on this and I think they are about as excited and eager as we are," Sullivan said.

If, as planned, the cedar tree transforms into the Lower Elwha Klallam ceremonial canoe, it will be priceless. "Our tribal members can't wait to see it and be able to begin carving," said Sullivan.

Once the tribe was given the green light to look for a tree, it took Bolstrom less than four hours to find it. "Something drew me to this tree," said Bolstrom, an employee of the tribe's River Restoration Program. "I saw its castle top from the logging road and when I walked to it and saw its size, I knew it was time to quit looking."

– E. O'Connell

Wave Of The Future

Makah Tribe Joins Project To Tap Ocean Energy

The Makah Tribe is hoping to see ocean waves become electrical energy through a cooperative demonstration project with AquaEnergy Group Ltd., a Mercer Island company that wants to commercialize its ocean tested wave energy conversion technology.

For the tribe, the technology has the capability to solve two of their biggest problems – the lack of both a consistent power source and clean drinking water. The wave technology would produce energy and it is compatible with the power-intensive equipment needed to desalinize salt water.

"In the best case scenario, their demonstration goes well and we are able to eventually site additional units out here. We could provide sustainable power, clean water, some income to the tribe and jobs," said Gordon Smith, vice-chairman of the Makah Tribal Council.

The group working to bring the effort to fruition includes the tribe, Clallam County Public Utility District (PUD), and Northwest Energy Innovation Center; a group comprised of Energy Northwest, Batelle Memorial Institute, Bonneville Power Administration and Washington State University.

In AquaEnergy Group's ocean tested buoy/pumps, the wave action moves the buoy up and down, which in turn creates a pumping action, producing pressurized seawater that is then directed into a turbine driving a conventional electrical generator. The buoys are moored several miles offshore in waters between 150 and 250 feet. The tribe will work with AquaEnergy to find appropriate sites for the buoys as the permitting process proceeds. The demonstration project will connect the electrical output to Clallam County PUD's grid to validate the commercial application of the technology.

It is estimated that if less than 0.1 percent of the renewable energy available within the oceans could be converted into electricity, it would satisfy the present world demand for energy five times over, according to the United Kingdom Foresight Panel.

For the Makah Tribe, the technology could change the way tribal members view winter storms. "Instead of moaning about the weather because we lose power so often, we could be saying, 'Blow, go on and blow. We're getting more energy from this storm," said Smith.

Besides creating enough energy for urban consumption, the wave energy converters can also be used to deliver water to desalinization equipment. The company has developed the units with that possibility in mind. "It's very easy to do because of how our product works. We create the water pressure and energy needed to desalinize water," said Alla Weinstein, president and chief executive officer of AquaEnergy Group Ltd.

AquaEnergy Group Ltd.'s wave energy converter (WEC) prototype bobs in a full gale off the coast of Sweden. The company is working with the Makah Tribe and other partners to demonstrate the commercial viability of the WECs off the coast of Neah Bay. *Photo: AquaEnergy Group*

Maintaining adequate supplies of fresh drinking water is a struggle for the Makah Tribe, said tribal council vice-chairman Smith. There is little groundwater and the tribe has to heavily treat the surface water with a facility that was built with an intended 20-year lifespan, but is now 30 years old. "We can only replace existing housing because the water system is maxed out. We can't build any new housing," he said. "Obviously we're very interested in the possibilities of this technology."

Clallam County PUD has agreed to buy the electrical power output of the 1-megawatt demonstration plant that will be produced during the test period. During a year, that would power roughly 1,000 homes. By comparison, the city of Seattle needs about 1,000 megawatts.

"Our hope is to be operating within a year, but the permitting process is the big unknown. We just don't know how long it might take," said Weinstein. Those inspecting the buoy/pump wave energy converters will find them environmentally friendly, Weinstein said.

"Anyone who cares about the world would want to have energy produced in a way that's less harmful to the environment," said Smith. – *D. Preston*

Spawner Surveyors Greet Returning Chum

In a place not many people know about, a railroad trestle crosses high above Chico Creek as the stream makes its way from urban Kitsap County into its relatively pristine upper watershed. This is where Jon Oleyar, Suquamish fisheries biologist, starts his day counting returning chum salmon. Climbing out of a dusty Ford S10 with "Coho Mojo" written in the dust on the back window, Oleyar is ready for another long day. As he climbs down the rocks that make up the foundation for the trestle, Oleyar sees dozens of chum that have moved up from Dyes Inlet into the Chico watershed. The largest watershed in the county, it is also home of the largest salmon run in the county.

"These are amazing creatures. You've never seen anything fight like a salmon to get home," said Oleyar. "This is my favorite part of my job; I get to hike up and down these streams all day watching these fish do what comes naturally to them. It's beautiful." As he continues up the bank, Oleyar begins counting various categories of fish he sees migrating. While the stream bed is literally chock full of chum salmon moving upstream to spawning beds, a few coho can be seen resting in deeper, murkier pools. "These coho are way more skittish than the chum," said Oleyar.

Oleyar points out that on this day, many of the salmon in the creek don't appear that much different than they would have in saltwater. Once salmon move into freshwater, they get darker and less shiny overall, gray blotches appear on their skin, males develop hooked jaws, among other changes. "These chum have just moved up in to the creek. They moved up because of the rain the last few days," he said. "You can also tell these are relatively new fish because not many of them have died yet." At only a few points in his hike, he pauses over a dead chum, notes its size, collects a scale sample, cuts the tail off the carcass to make sure it isn't sampled twice, and then continues counting. Later in the month, the banks of the creek will be littered with the carcasses of spawned out chum, he said.

Jon Oleyar, Suquamish fisheries biologist, collects a scale sample from a spawned out chum salmon on Chico Creek. Scale samples are used to determine the age of the salmon. *Photo: E. O'Connell*

The Suquamish Tribe is expecting historically high chum returns to Chico Creek this year, due to good ocean conditions and high returns in 1998 (the brood year of many of this year's salmon), said Jay Zischke, Marine Fish Program Manager for the tribe. "Chico has one of the largest runs of chum salmon in the Puget Sound, but this year because of numerous reasons, we're seeing more chum than we've seen in a long time," he said. Over 1 million chum are estimated to return to the Puget Sound with 150,000 returning to east Kitsap, most of those going to Chico. "This isn't a signal for us to stop our efforts to restore runs of other salmon species – such as Puget Sound chinook – it should remind us what good salmon runs look like," said Zischke. Puget Sound chinook are currently listed as "threatened" under the Endangered Species Act.

The information Oleyar and four other Suquamish surveyors are gathering goes a long way in estimating how many salmon could return in the future for harvest by both treaty and non-treaty fisheries. "By determining the ages of the returning salmon, we can look forward and predict how many fish will return next year and then decide what will be safe harvest levels."

"As co-managers of the resource, the tribes believe in providing the greatest protection possible to chum salmon in Puget Sound," said Rob Purser, Suquamish Tribe's Fisheries Director. "We're happy that our efforts will go to help create a sustainable future for these salmon. This project is a good example of how cooperative management is working to protect the resource for harvest." – *E. O'Connell*

Puget Sound Chum Salmon Fast Facts

- Scientific name: *Oncorhynchus keta*.
- Common names: Dog salmon, calico salmon, chub, fall salmon, and keta salmon.
- Almost immediately after hatching, chum migrate to salt water waters. This stands in contrast to coho, chinook, and sockeye salmon, and steelhead and cutthroat trout, which migrate to sea after months or even years in fresh water.
- Chum range in North America from the Sacramento River northward to Arctic Alaska; although chum salmon are found primarily north of the Rogue River in Oregon and Washington.

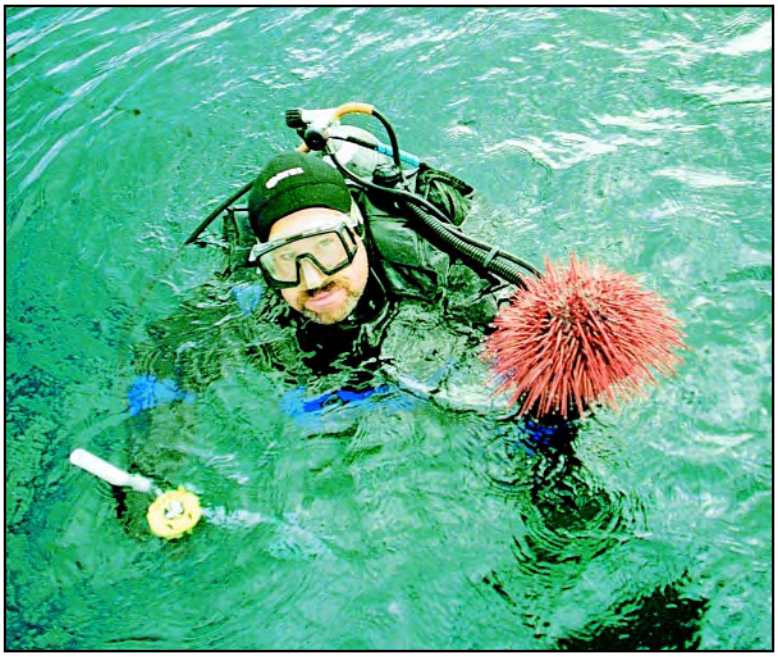
Lower Elwha Klallam Tribe

Searchin' For Sea Urchins

The Lower Elwha Klallam Tribe is conducting surveys to determine how many pounds of red urchins can be safely harvested off the north shore of the Olympic Peninsula without harming the resource.

"Because of the increasing importance of this fishery, we need as much data as possible to help plan these upcoming seasons," said Pat Crain, Lower Elwha Klallam Fisheries Manager.

"With the decrease in salmon fisheries across the region, the urchin fishery has become increasingly important to tribal members," said Bill Gardiner, tribal shellfish biologist. "As more tribal fishermen are diversifying into shellfish fisheries such as urchins, data on urchin populations has become all the more important."



Bill Gardiner, Lower Elwha Klallam shellfish biologist, presents a red urchin during a survey of Freshwater Bay, near the Lower Elwha Klallam Reservation. *Photo: E. O'Connell*

Divers harvest red urchins by simply picking them off the ocean floor at depths from 20 feet to 70 feet. Urchins are known to live as deep as 300 feet. Most of the sea urchins harvested on the West Coast end up in sushi, sold both in Japan and worldwide. Once considered pests to divers, urchins have become a valuable commercial resource since the 1970s.

It's been six years since the last urchin population survey in this part of the Strait of Juan de Fuca. The tribe has been concerned that a lull between surveys might lead to flawed decisions in determining sustainable urchin harvest levels. Lower Elwha Klallam staff are conducting the surveys in cooperation with the Jamestown and Port Gamble S'Klallam Tribes, the Skokomish Tribe and the Makah Tribe.

The tribe is concentrating its efforts in the eastern part of the Strait. "We know that tribal and state harvests have been concentrated in certain areas. However, until we go out to look, we won't know how the population is responding," said Gardiner.

When they find large numbers of urchins in an area, they conduct additional surveys to take a closer look at that area. "We are also using an underwater camera to rule out large areas that have no urchins," said Gardiner. Data gathered from the surveys will be used to set the harvest quota for 2002.

In addition to setting the treaty Strait of Juan De Fuca harvest limits for the next few years, the data being collected on these surveys will be shared with the State of Washington to help shape its seasons. "As co-managers of the resource, the tribes believe in providing the greatest protection possible to red urchins in the Strait," said Crain. "By providing the state with this data, we will work together to create productive harvests and protect this resource."

– E. O'Connell

Strait Of Juan De Fuca Red Urchin Fast Facts

- Urchins move about with their spines and tube feet, small sucker-tipped tubes that help them hold on to the rocks.
- Scientific name: *Strongylocentrotus fransciscanus*
- The urchin's shell can grow as large as five inches wide, two inches high, and is covered with spines that can grow as long as three inches.
- The long spines on top of the urchin are used for protection, like an underwater porcupine. Spines also are used for burrowing and trapping food.
- "Red" urchins can actually be red, purple or black.
- Red urchins range from Alaska south to the Baja Peninsula in Mexico.

Razor Clam Harvest Opportunities Bright

Razor clam populations are at a higher level than they have been for years on the beaches north of Grays Harbor and that has meant more harvest opportunities for tribal and recreational diggers this season.

The healthy clam populations are a sign of success to the Quinault Indian Nation (QIN) and the Washington Department of Fish of Wildlife (WDFW), the co-managers of the razor clam resource in this area.

The QIN and the state work together to assess the clam populations on the off-reservation beaches that fall within the Quinault Usual and Accustomed Fishing Area. They work side-by-side, using the same equipment and survey methods, and splitting the tasks. The harvest guidelines developed as a result of the surveys are based on a percentage of clams available for harvest. Harvests are shared equally between recreational and tribal diggers as defined by a treaty between the tribe and U.S. government.

"The shared work on the beaches where both QIN and recreational harvesters dig really helps us out," said Dan Ayres, razor clam project manager and coastal shellfish lead for the Washington Department of Fish and Wildlife. "For instance, on Copalis beach, there are 11 miles of beach that have to be surveyed and each mile takes one day to survey. Splitting the work frees us up to do work on the other state managed beaches," he said.

The beaches are surveyed between late April and August. "What gives us confidence as co-managers is that together, we come up with population estimates on each beach," said Joe Schumacker, QIN marine shellfish biologist.

Both biologists agree there is a misconception that the QIN gets more clams than recreational diggers because they have more days to dig. The truth is that tribal members dig more days because there are fewer tribal diggers compared to recreational diggers.

"It's simple numbers. If you have 8,000-10,000 recreational diggers harvesting in one day, it takes fewer days to harvest their 50 percent. We have roughly 250 tribal members that may participate in the digs, so it may take us ten times as many days to get what recreational diggers get in one day," said Schumacker.

A common criticism by recreational diggers is that some tribal members use wheelbarrows to tranport their catch. "Wheelbarrows are just an efficient way to save people's backs," Schumacker said. Daily harvest limits for tribal members are much higher because there are fewer diggers. The tribe has commercial as well as ceremonial and subsistence digs.

"There is almost no commercial digging of razor clams by non-Indian diggers, but commercial digs are an important source of supplemental income for tribal members," he added.

As co-managers, both QIN and WDFW are concerned about enforcing the rules and working together to eliminate violations. "I've watched their (QIN's) enforcement on commercial digs and I think they do an excellent job. However, during the state fishery it is not unusual to have hundreds of recreational diggers spread for miles, making it difficult for state enforcement officers to effectively monitor them," said Ayres. "In contrast, the Quinaults have a set two-hour digging period and a single exit checkpoint."

Ayres and Schumacker have seen a large number of young clams in their surveys that indicate an even better razor clam season next year if the winter is kind to the young clams. "If we get a mild winter, the numbers should go nowhere but up. Even this year, it's easy to get your limit in a short amount of time," said Ayres. – *D. Preston*

Quinault tribal member Marco Black harvests razor clams from the surf line on a beach south of Taholah. *Photo: D. Preston*

Rapid Shellfish Toxin Test Being Developed

The Quileute Tribe is at the forefront of developing technology that can more quickly test shellfish for toxins that can sicken and kill people.

Shellfish are culturally and economically important to the tribe and tribal members regularly consume shellfish as part of their diet. However, tribal members and others are being warned more and more often not to harvest clams and crab because high toxin levels can cause serious illness or even death.

In partnership with the National Oceanic and Atmospheric Administration (NOAA), the tribe has been looking at the relationship between phytoplankton blooms, toxins in seawater and the accumulation of toxins in shellfish. The tribe is beginning field trials of real time "rapid assays" for two types of toxins in shellfish.

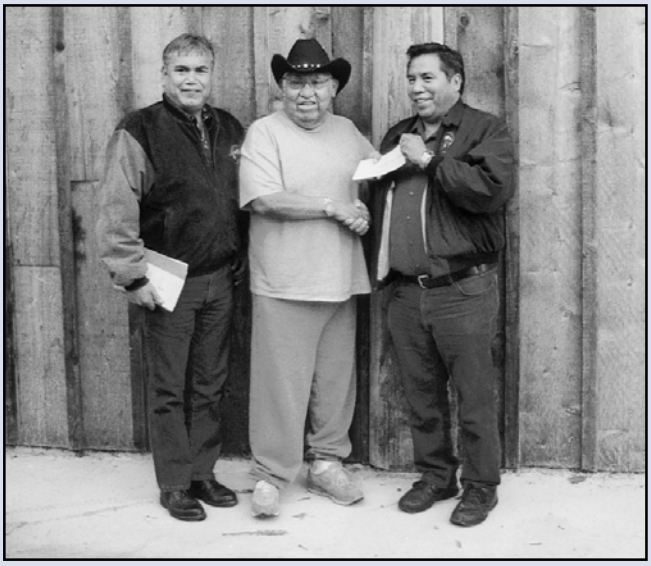
"Our goal is to have a screening test that all tribal people, not just skilled technicians, can use," said Mitch Lesoing, marine biologist for the Quileute Tribe. The tribe opened a new lab that provides the equipment to prepare and test shellfish samples on its reservation in LaPush. Currently, prior to a harvest, the tribe must take shellfish from the harvest area, send the sample overnight to Seattle and wait up to a week for the results to see if the shellfish are safe to eat. The tests, often needed more than once a week during harvest times, cost the tribe $500 each time. Additionally, by the time the test results are received, the toxin may have dropped below dangerous levels in one area and risen in another.

During the validation phase of the project, the tribe is testing a promising real-time test that will screen for toxins. In the testing procedure, 10-11 clams from a particular area are shucked and ground in a blender. A bit of the ground clam meat is mixed with chemicals to extract the toxin, then added to a plastic slide that looks similar to a home pregnancy test. If toxin is present and the test worked correctly, colored bars of varying intensities appear.

The tribe is fine-tuning the test over the next six to eight months in conjunction with the company that makes the test and NOAA. "Eventually, tribal members who have collected shellfish that day can come into the lab, test them and know within an hour or so if they are safe to eat," Lesoing said.

Quileute fisheries technician Eugene Jackson tests shellfish for the presence of biotoxins. *Photo: D. Preston*

The tribe is also working with the federal government to help develop a seawater test that will reveal if the organisms that are thought to cause the toxin are beginning to build in coastal waters. – *D. Preston*



Help For The Mountain Goats

Dennis Anderson, left, and Franklin Lozier, right, Muckleshoot tribal council members, present Lawrence Joseph of the Sauk-Suiattle Tribe with a $15,000 check to help fund the tribe's studies of the declining North Cascades Mountain Goat population. *Photo: J. Shaw*

Stillaguamish Tribe Saves Stranded Coho

The journey for a salmon on its way to spawn is difficult enough given natural barriers. When human intervention into the natural environment creates stream blockage, though, even these magnificent fish sometimes need an assist to complete their epic journey.

The Stillaguamish Tribe recently helped dozens of coho salmon traverse a blockage on Kruger Creek in Arlington. Until the stream blockage – a set of log weirs that has been in place for over a decade – can be dealt with, the tribe will transport stranded coho from behind the barricade to their spawning gravel upstream.

"This is a quick fix that will help salmon immediately," said Jason Griffith, a biologist with the Stillaguamish Tribe. "We hope to come up with an effective long-term solution before the coho runs start up again next year."

Tribal staff carried the fish 25-30 yards past the blockage, then placed them safely into the stream, letting nature take its course. With the salmon given access to their historic spawning grounds, tribal biologists expect the fish to be able to reproduce successfully.

Ironically, today's salmon problem stems from attempt to solve an earlier problem for fish. In 1989, a local volunteer group put in the log weirs to help salmon pass through a culvert that is in the area. But natural stream movements turned the log weirs into a new – and just as vexing – dilemma for fish.

"The problem ultimately stems from the culvert being too small. There's not enough room for successful fish passage. Ultimately, that will have to be addressed," said Griffith. "We're going to try to achieve the most cost-effective solution for the long term, which might or might not include culvert replacement."

A State of Washington report in 1997 called blockage of salmon passage by road culverts "one of the most recurrent and correctable obstacles to healthy salmonid populations in Washington."– *J. Shaw*

Stillaguamish tribal staff search for stranded salmon as students from Kent Prairie Elementary in Arlington look on. *Photo: J. Shaw*

Drought, Dams May Be Killing Elwha Salmon

Warm water caused by last year's drought conditions and two obsolete hydroelectric dams may be killing young salmon on the Elwha River. After noticing hundreds of mortalities of juvenile coho and steelhead in late November and strange behavior in a number of the surviving fish, Lower Elwha Klallam tribal fisheries staff contacted fish pathologists at the Northwest Indian Fisheries Commission. While the pathologists found no unifying disease killing the fish, they did note that most suffered from decreased white blood cell counts likely caused by warm water induced stress.

"These deaths are troubling, especially considering the tribe's efforts to recover declining salmon stocks in the Elwha River," said Pat Crain, Lower Elwha Klallam Fisheries Manager. "While deaths connected to stress haven't seemed to affect the stock of threatened chinook yet, these coho and steelhead stocks that are dying are extremely important to the tribe."

"In addition to the extremely low water year we've been having, the Lower Elwha and Glines Canyon dams are major culprits in warming the river," said Mike McHenry, tribal fisheries biologist. The sun heats the reservoirs behind the dams, and since water is drawn from the top of the reservoir, the water temperature below the dams rises.

"Droughts are going to happen, and the best we can do to help is take real measures to conserve water. However, the only way we're ever going to alleviate the problem of high temperature in the Elwha River is to remove the two dams. Without that, we're going to have a continual problem," said Crain.

– E. O'Connell

Goldsborough Creek Re-opened To Salmon

For decades, the Goldsborough Creek Dam blocked access to miles of salmon spawning and rearing habitat.

Just weeks after the dam's removal and the restructuring of the streambed, salmon have begun moving into the newly opened habitat. *Photos: T. Meyer*

The cork has been pulled from Goldsborough Creek.

After decades of effort by the Squaxin Island Tribe, a 35-foot-tall dam blocking nearly 25 miles of prime salmon spawning and rearing habitat in the stream has been removed.

"We are excited about the prospects for improved salmon production in Goldsborough Creek as a result of the dam's removal," said Jim Peters, tribal natural resources director. "The dam was like a cork in a bottle that was blocking access to good quality habitat."

The dam sat about 2 miles upstream from the creek's mouth on Oakland Bay, and played a number of roles over the years, including serving as a small-scale hydroelectric project. Simpson Timber Co. acquired the dam in the late 1950s, but by 1996 had ceased to rely on the water which the dam impounded.

In 1999, the company and State Legislature each pledged about $1 million toward the several million dollar cost of the dam's removal by the U.S. Army Corps of Engineers. Besides the Squaxin Island Tribe, other partners in the project included Mason County, the City of Shelton and the South Puget Sound Salmon Enhancement Group.

About 25,000 cubic yards of sediment behind the dam was excavated and used as fill below the dam to re-establish the stream's grade. A series of weirs was installed to control the stream's flow and to ensure adequate flows for fish passage even during periods of low water.

Coho and chum salmon, as well as steelhead and cutthroat trout will all benefit from the dam's removal, Peters said. In particular, coho and chum salmon production from the creek is expected to increase dramtically. "All we have to do is give salmon a chance to be sucessful by opening up this habitat. They will make the best of it," Peters said.

– T. Meyer

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